THE AMERICAN

GAS LIGHT JOURNAL

INC.

PUBLISHED WEEKLY, AT 42 PINE ST.

VOLUME CII. No. 3.
Whole No. 2,067.

NEW YORK, MONDAY, JANUARY 18, 1915.

Subscription, $3 Per Year.
$4 Canada, $5 Foreign.

LIBRARY OF CONGRESS
JAN 18 1915
SMITHSONIAN DEPOSIT

Riter-Conley Manufacturing Company

STEEL CONSTRUCTION

Pittsburgh

INDEX TO CONTENTS, PAGE 48.

ADVERTISERS' INDEX, PAGE 26.

THE UNITED GAS IMPROVEMENT COMPANY,

PHILADELPHIA.

BUILDERS OF

THE STANDARD DOUBLE SUPERHEATER

LOWE WATER GAS APPARATUS.

ACCURATE MEASUREMENT

OF

AIR AND STEAM SUPPLY

(PATENTED),

AFFORDING { PERFECT CONTROL OF GENERATOR FIRE CONDITIONS.

PRODUCING { UNIFORM RESULTS. HIGHEST EFFICIENCIES.

THE AMERICAN
GAS LIGHT JOURNAL
INC.

VOL CII., No. 3. NEW YORK, JANUARY 18, 1915. WHOLE No. 2,067.

THE IMPROVEMENT OF DISTRIBUTION EMPLOYEES.[1]

By C. E. REINICKER.

It is unfortunate that we of the operating end of the industry cannot avail ourselves of a "Board of Educational Control," similar to that in the National Commercial Association. The real reason for our not having such an establishment lies in the fact that we are dealing with a different class of employees. Our men, in many cases, have to be taught the manipulation of tools and definite methods of connecting appliances. They must be actually shown, and this cannot be done by a correspondence course modeled after that of the N. C. G. A. While it is necessary for the successful salesman to know something of distribution methods, he can know them far more superficially. Therefore, each executive is required to work out his own practice at present, as far as the education of his distribution men is concerned, although he can be greatly helped by investigating the experience of others along similar lines. It has come to my attention, however, that there is an organization which advises companies that are its members in the proper starting of educational work. This organization, The National Association of Corporation Schools, embraces all industries, and may provide the material needed; and an investigation of its methods is sure to result in information of great value.

There are two fundamentals to be gained by educating the men of the distribution department. First, that they may have increased capacity; and second, that by this increased capability, they may become of more worth to themselves. In order to be of the highest value to the company and to the public, they must be trained in two ways, in the "service" sense and in the mechanical sense. While training the men from the company's viewpoints, they must also be made more self-esteeming, or in other words shown how to help themselves so that they may become better and more useful to themselves, and they will become more useful citizens by the awakening in them of a sense of duty to the community.

The ultimate end for which all public service corporations are striving, is the most efficient result in performing the service they undertake to render. The energy of the whole organization should be directed toward that purpose, for it is largely upon service rendered that the life of the undertaking depends. This means that the points of contact between the company and the public be carefully watched, necessitating that the men of the distribution department be taught this attitude of "service" with all that the word implies. We must make them realize one important, even solemn, point, namely, that when they are on the work or the company, each individual is the *gas company*. He must be made to realize his importance in the general scheme of producing efficient service, and his dormant sense of position awakened. Once awakened, the future possibilities of development come from within.

The public does not respect our advertising, the desire to provide efficient service; it does not know, nor care about the attitude of our managers or officers, if the workmen it meets during the daily course of busiuess do not live up to these tenets. The public sees and judges the company entirely by these individuals' actions; and therefore, our reputations are largely in the hands of men who may not care whether the company makes good or not, but who must be taught, retaught and taught again, that as long as they are in our employ, "service" is the most important item.

As a fitting climax to the argument for this necessity, statements made by two gentlemen, one the president of a great public service corporation and the other the chairman of a State utilities commission, will not be amiss. The president of the Consolidated Gas Company, of New York, referred to this development in his address at the recent centenary celebration. Mr. Cortelyou said in part:

"The shortcomings of a supply as to pressure, candle power efficiency and other essentials. are apt to be a matter of moment, and when remedied in a gracious manner leave no rankling; but the shortcomings which are evident in poor service, brought about by inattention, neglect or slipshod methods are not easily effaced from the consumer's mind; so I say that the word "service" should be writ large in the mind of every worker for a public service corporation."

Chairman Duncan, of the Indiana Commission, states the same necessity in the following words:

"Of all the complaints which come to the commission, few are against the conduct of the managers of the companies. The chief complaints arise from the insolence of the employees. School your employees in kindness and consideration towards the public. This will do much to bring the friendliness of the public to your companies. Treat the people with consideration and civilily and you will remove one of the best grounded reasons for complaints against you. I suggest that the larger companies establish schools of instruction for employees."

Although the street man undoubtedly requires some training in a mechanical sense, his work is entirely different from that of the fitter, particularly in the larger companies. In this paper, however, the fitters are considered the most important element of the distribution organization. These men are constantly in touch with the public, and on a more intimate footing than the men of any other department. Therefore, upon this department most of the responsibility for a satisfied or dissatisfied public rests.

In the work of a gas company we require that the fitter shall be different from the usual conception of the term. In addition to mechanical skill; he must have an intimate knowledge of gas, he must be a "gas man." This is why so many fitters with fair mechanical skill are unable to hold positions with a gas company. Unless we satisfactorily comply with all requirements the good work of other departments may be completely nullified by carelessness or incompetence.

This brings up the necessity of close co-operation of the distribution department with other departments. Too often we find departments hostile towards others, and interfering with the best service to consumers by resorting to irritating quibblings over points too minute to be noticed by one in authority. We of the distribution department must not forget that we are dependent upon the commercial department for our existence, and the more we can aid that department to satisfy customers and increase business, just so much more work we will have. There may be many justifiable kicks about promises made to customers as to the delivery or connecting of appliances, etc.; but with harmony existing between the departments, much friction can be avoided and the good of the service advanced. Therefore, in the production of mechanical efficiency, our men must learn that co-operation with other departments will greatly aid and produce a well oiled machine wherein all parts operate in harmony.

1 Prom paper prepared for A. G. I. meeting, New York.

In addition to the demand for satisfactory work, we are constantly reminded of the necessity of good mechanical work from the standpoint of cost. Economy in operation can only be attained by having work done in an efficient manner, and the only way that men can so carry out the work is by being taught, either by years of experience or by some definite educational scheme. By the latter method the fundamental principles can be much more accurately and quickly mastered, but in the end, the best education a man can receive is that derived from constant contact with his work. Experience has been and always will be the best teacher, and by making mistakes a man grows proficient, if he is of the right caliber.

In our business, however, we cannot afford to make many mistakes at the expense of a customer and his good will towards the company. Furthermore, mistakes cost money, and it behooves us to eliminate as many as possible, and by proper teaching of the fundamental principles of the work, we can materially reduce this source of worry and loss of revenue.

If it were possible, the owners of gas companies would carry on all the actual operations themselves, so that they could be sure that the work was being carried on as cheaply and as expeditiously as possible, but as is manifestly impossible, they are compelled to trust the carrying out of the various operations to others, their managers, engineers, superintendents, etc.; and these in turn have under their direction other men. It is, therefore, upon these latter the owner is eventually dependent for at least a portion of his profits. The owner entrusts his business to those whom he pays to do the work, and generally he comes in personal contact with only a few of his department heads. These, by training or experience, are able to carry out his wishes or policy in a manner determined by best practice. He trusts these superiors to produce results, and to conduct the enterprise in the same efficient manner as he would himself. Therefore, the men occupying these positions must see to it that the force under them operates as thoroughly and as economically as possible, and they must inform their force of the best manner of conducting the work in accordance with the policy of the undertaking.

The large companies have many departments each doing some one thing; while in the smaller a few men may be engaged in all kinds of work. The result is the same; each individual must be equipped with knowledge of the work he is called upon to do. On the ability of the workman the whole organization stands, for if even one man is weak the operation of the company is impeded and efficiency lowered.

I have endeavored to impress upon those in charge of distribution work the necessity of educating their men in two ways:

First (and most important); along lines of rendering "Service."
Second: Along lines of perfecting mechanical work.

President Mulholland, of the Indiana Gas Association, in his inaugural address of 1912, summarized this as follows:

"Are we not operating in restraint of our own trade by failing to see that the company has only such employees in office, works, shops, fitting, maintenance and street departments that are always striving to give the best attention, best quality of product, most efficient work and service, and best and most courteous treatment and earnest consideration to the necessities of our patrons, anticipating their requirements wherever possible.

Many of us have been looking at education entirely from the viewpoint of the benefits accruing to the company. There is, however, another aspect, the benefit to the men themselves. In this connection we must recognize there are men in the class of unskilled labor through lack of opportunity or foresight, or due to other circumstances not under their control. The ranks of this low grade labor are overcrowded, and industry in general suffers from want of skilled workmen. Many have no desire to better themselver; others are not capable of improvement, although faithful and willing plodders. On the other hand, many can be trained to semi-skilled or skilled special labor. Out of this situation has grown the demand for a system of education to meet the needs of industrial workers, and it is with this for the men of the distribution department that we have to deal.

The average unskilled laborer is a "floater," or a parasite, with no responsibilities and worthless to the community. His moral standards are low and his viewpoints are distorted. While an education cannot make such realize his responsibilities to society, we know that we have little real trouble with the industrious and thrifty workman. With increased responsibility comes a more satisfied sense of position, a realization that "All men are not born to rule." Unfortunately the satisfied class is in a minority, and as a result, the state of modern industry is one of unrest. The laboring man declares that the enormous advances in the industrial world have not brought about a proportionate advance in his position. However, the fact remains that industrious workmen are better off in general in the present age, and also that wages of labor have undeniably risen during the last half century, but not proportionally with the increased demands made by labor.

Although the gas industry as a whole has been remarkably free from labor troubles we cannot say that we may not become involved, and it behooves us to take some measures to guard against this possibility. Notwithstanding the present unsatisfactory out look, I feel that conditions will adjust themselves so that labor will respond favorably to the efforts made by welfare work and pensions, the betterment of surroundings in a physical sense, etc. By proper education this end can be hastened, because then men will realize their duty to society and their responsibilities. If we can make our men realize that their work is not a meaningless routine, but an important item in our operation, we will have a better organization, one loyal to the company not only during the course of business, but at all other times.

In the previous paragraphs the question has been treated from an altruistic point of view, but now it will be considered from the angle of the money involved.

In every large company there are, in proportion to the size of the undertaking, large sums of money involved in the payroll, generally from 10 to 15 per cent. of the total manufacturing and distribution cost. Wherever possible, mechanical means have replaced human hands, and science and invention are continually striving for the ultimate perfect state. But we are still largely dependent upon human endeavor in our business, and this important fact is just being given the consideration it deserves. Although it is difficult to place an actual value on the efficiency of men, we know accurately the amount of money represented by them. We have large sums invested in these human agents, greatly superior in importance to our mechanical agents, and yet this branch is much less efficient than are our machines. And we have, until recently, watched unseeingly and uninterestingly, large sums of money put into a poor investment, paying interest in labor and endeavor. The man to whom we pay $50 a month is usually a poor grade, yet the investment at 4 per cent. that pays his yearly salary is $15,000. The $75 per month man represents $23,000. We know that a 1,000,000 cubic foot holder costs approximately $100,000, yet do we realize that the money invested to pay the salaries of four men at $75 a month would about pay for a holder? It is clearly advisable to try to increase the efficiency of this human element in our business, since it is the only type of machine that is capable of a steady increase in efficiency, and in which the money spent draws an ever growing interest in service. Therefore, the size of this investment demands increased efficiency of those on our pay rolls. We must provide these individuals with something they did not have before, that will make them more valuable to themselves and to us, and we must lay out the path and plant the necessary sign posts to show them the way to go, so that there will be no misdirected effort or lost motion.

Selecting Men.—Having proved the necessity of educating our men, we can now turn to building the organization, the *force* with which to carry out the policies laid down for us. The first step is to obtoin the proper timber; therefore, in hiring our men, care must be used. In other industries emplorers are prone to hire those men who have strong qualifications for, rather than experience in; the particular line. If a man has ability and shows a willingness to work he can be taught, while laziness, dishonesty or existing prejudice nullify the best experience.

In the determination of an applicant's fitness, an employer should have certain standards of requirements, and by them form his opinions before selecting men. These standards should involve a fundamental knowledge of the requirements of the situation, and an understanding of the applicant.

In determining a man's ability, the lists prepared by Mr. Hugh Chalmers, President, Chalmers Motor Company, and Mr. F. W. Taylor, efficiency engineer, may be of service:

Chalmers.	Taylor.
1. Health.	1. Health.
2. Honesty.	2. Honesty.
3. Ability.	3. Brains.
4. Initiative.	4. Grit.
5. Knowledge of business.	5. Special knowledge, manual dexterity, strength, etc.
6. Tact.	6. Tact.
7. Industry.	7. Energy.
8. Open mindedness.	8. Judgment.
9. Sincerity.	9. Education.
10. Enthusiasm.	

The fundamental necessity in building up an organization is the employment of men who have certain necessary requirements for the work in which they are to be engaged, determined not by guess work, but by some definite plan. They must have a reasonable amount of latent capability, since it is impossible to direct the energy of an individual who has no aptitude for the work. The proposition then narrows itself down to obtaining men capable of being educated, or those who, while they may know the business as carried on in some other locality, are willing to be taught the methods determined by the employing concern. The live superintendent has no use for the "Old dog that cannot be taught new tricks" or, for the young man who is not willing to learn.

Too much stress cannot be laid upon the hiring of men. It is vital, and must be handled with the greatest care. With a weak employing agency in the shops or office, the whole organization will give trouble. This work may be likened to the foundation construction of a building. In the usual run of business, not much thought is given to the importance of a proper medium for employing men. I do not necessarily mean a person whose whole duty is in this work, but any one who is responsible for the hiring of men. This medium or agent must look upon this work as a possibility for great things and not as something to be slighted. It is his work to move human chessmen on the board, to produce the combinations as regards temperament, characteristics, disposition, etc., which will create efficiency. This requires more than haphazard snap judgment and, therefore, the man who does it especially in a large organization, should be particularly fitted for it. He must understand men, and should be broad and sympathetic, willing to put aside personal prejudice for the good of the company. He should be of sound judgment, keen, alert and thorough. He should not bully the applicant, but should realize that in many cases the obtaining of a real job is an epoch in the life of a man, and for this reason the employing agent should not be inconsiderate or unkind. With these qualifications for the employing agent, and a definite plan worked out for the hiring of the men and their advancement, primarily from the standpoint of ability, the organization must succeed. In large companies the chief aid to this work is a central employment bureau having complete control of the hiring and promotion. This makes possible a clearing house for all departments and a means of standardizing advancement. I do not believe in an absolute rigid standardization if ability is likely to be subordinated to age requirements and length of service. Manifestly this will stifle initiative: therefore, any idea for the advancement of men, must be constructed on the principle that ability and fitness be given full weight. In addition, there should be special dispensations for men working along particular lines, and to those not classified as to occupations, etc,, since these also are necessary exceptions to any hard and fast rule.

In this connection it will be interesting to describe the system for the hiring and advancement of men used by the Peoples Gas Light and Coke Company.

The employes of this company are divided into two classes, salaried (those paid by the month) and those paid by the day. No outside persons are engaged for any salaried positions, unless the position is highly specialized or technical in character. The rank and file begin as messengers either in the main offlce or in the delivery department. All salaried positions are listed on cards, and fall into one of seven grades, establishing the minimum and maximum salaries for the position. When a vacancy occurs, all employees in the same grade or in the next below are eligible for advancement, regardless of the departmeut. Promotion depends on three factors; merit, length of service and the grade occupied. When other qualifications are equal, candidates are ranked by length of service.

In the distribution department the Merit system applies to all clerks, and to those of the operating force on the monthly basis, including shop and fitters' foremen, some main foremen, and inspectors. The superintendents of the divisions hire and advance the men who are not salaried, and recommend to the Merit board changes in rate or position which falls under its jurisdiction.

In Rochester, there is a similar bureau, "which although new is already making its advantages felt in all departments. It does not take away from the general foremen of the street and shop departments the power to hire the men of his department, but it is found an aid to procure easily and quickly the special kind of men he may desire. The bureau enrolls individuals looking for work, the kind of work they are able to do; in fact, a general record of them and their ability. If a man is hired by the shop or street department, he must be examined by a physician."

Methods similar to those outlined help to avoid the danger of forgetting a man and letting him be buried. Many men of undoubted ability are forgotten for so long a time, that when suddenly put into a position of responsibility, they are unable to hold it, through fear rather than from lack of ability.

We should start each man with the goal of at least becoming a foreman, and all applicants should be looked upon as future foremen or superintendents. For this reason, as few men as possible should be disqualified by disease, since lack of health is one of the possible stumbling blocks that we control. Every employing expert insists that health is the first requisite for a successful man; therefore insist upon some kind of a medical examination. There is no good reason for opposing this view, but there are companies that make no medical examination of applicants. To facilitate this work, the employees should be divided into two classes, permanent and temporary; thus taking care of the laborers hired only for the summer work. It would be a loss of time and money to examine such employees, but all those who expect to stay with the company, fitters, helpers, street mechanics, caulkers, and permanent laborers, such as yard men, janitors, etc., should be subjected to a rigid examiniaton, and if they are not physically fit, rejected. If the company has a welfare or pension system, the report should be more elaborate than if merely an examination for employment without these benefits, but in any case, the important items sbould be well covered.

The progressive operator realizes that money spent in this way is gained in efficiency, since he can be reasonably sure that his men will be able to stand the strain of their work, and that there will not be constantly interrupted service. If a man suffers from a contagious disease see the risk to which his associates are subjected. Again, a diseased body often means a diseased mind, and the latter may mean an agitator, stirring up discontent and discord.

In states having workmen's compensation acts, an examination is a necessity, since it may prevent injury from hereditary or acquired weakness. It may detect a disease that will bring on an epileptic fit and cause the man to fall into a machine.

Methods of Education.—After the applicant is accepted, we must immediately begin his education. I am assuming that the new men are started at the bottom, this being the only way to assure harmony in the organization, as nothing is more prone to disrupt an organization than the jumping about of men without regard to ability or length of service. The most valuable men to an organization are those who have grown up in its service, starting at 18 or thereabouts, and who have reached the top by steady strides. These men are permeated with the spirit of the company and are the stand-bys in emergency or stress of any kind, in addition to having an intimate knowledge of the methods employed in the organization. Therefore, the younger we take our men and begin to train them, the better off we will be.

Under a previous head, mention was made that while experience is the best teacher we cannot afford to lose prestige through the mistakes of our men. They must be taught to avoid mistakes, but the teaching must not interfere with work. Because of this, and on the score of economy, the educational work can, with advantage, be conducted in a place apart from the work of the department.

In this more or less theoretical education there are two avenues of procedure to be considered: first, by lectures, reinforced by demonstrations embracing all phases of the work; and second. by schools of instruction. However, any method must be assisted by their gradual development in the actual work of the division. They should be put as helpers under trained men, and when they qualify as fitters, they must be closely watched by inspectors or foremen to help them over hard places.

The size of the company determines whether a definite school of instruction is possible, but wherever there are a number of men doing the same class of work, the individual school of instruction offers the greatest chance of success, since it instructs the men without interfering with shop routine. Lecture courses are ideal for instruction in work that does not require mechanical skill; but if mechanical skill is necessary, the school of instruction is the place to acquire it.

Lecture Courses.—In smaller companies the lecture course, reinforced by examples and demonstration, is the best method, although the lecture cannot develop the thoroughness of mechanical training gained in the school of instruction. However, any means of instruction is an advantage, and if it be impossible to carry out the school idea, the lecture should be used.

I quote briefly the procedure of the Pacific Gas and Electric Company as an example of the lecture demonstration idea:

"This condition (the creating of all around men) has been arrived at by a night school to which all employes are eligible, joining of their own volition, but having once joined, they must attend regularly and take everv examination.

"Several nights each month a portion of the work is covered by lectures and explanations and practical demonstrations of the work covered by the lecture. After several lectures and demonstrations on a particular portion of the work, the men are given questions to answer. If the percentages of the answers are very high, we pass on to the next work, but should the percentage be low, we cover the same ground again.

"It is surprising how beneficial these practical demonstrations have been. Frequently a problem is given to all of the men, with a request that they send in written answers, although it is not obligatory on any one. For instance, this was given to the distribution department: 'How would you handle a complaint from its inception to its completion?' Nearly all responded, and those who did very well were commended, while those who did not do so well were brought together and the subject thoroughly discussed."

Des Moines, where the company is smaller has a definite educational scheme which will be cited:

"We have an educational class which meets monthly and all of the men take an active part. The object of this class is to make the employees of all departments familiar with the work in all other departments, and incidentally specifically instruct the group whose work is developed at the meeting. In addition, each group in the shop force has weekly meetings under their foremen, in which specific instructions and suggestions are given and the men encouraged to take part in the discussions."

In these two instances we have the lecture or lecture demonstration idea set forth, and that they accomplish great good goes without saying. In these companies the size or the organization does not warrant the expense of a school of instruction. The one possible objection to this method, when held outside of working hours, lies in the detaining of the men without pay, even though it is voluntary on their part.

In some large companies, employees' meetings are regularly held for instruction. For instance, the Distribution Department of the Philadelphia Gas Works requires their men to attend schedule meetings. In the fitting department the meeting is usually every Monday morning before the men leave the shop, and lasts about an hour; and an occasional meeting is held at night for not less than two hours, starting about 7:30. Meetings for the main and service men are always at night, they being allowed a bonus for attending, as are the men in the fitting department when they meet at night. The subjects discussed at these meetings include the new rules and new features connected with the work, errors made since the previous meeting, study of the rule books, etc. When a new appliance is placed on sale, specialists from the Appliance Division attend the fitters meetings to explain its construction, installation and adjustment.

Schools of Instruction.—In considering the establishment of a school of instruction, it must be understood that the success or failure of the enterprise rests largely upon the man who is to be the operating head of the undertaking. He must be of the highest type and preferably one who has risen from the ranks by conscientious and faithful service. He should have executive ability, and a talent for teaching others and must be given absolute control of the school. Only by having such a man and giving him this authority will the school be successful. He should report direct to the head of the department, not to some assistant or under superintendent, since the proposition requires careful watching to prevent discord between the shops and the school, and to insure the full benefit being obtained.

In several large companies, the school of instruction has been greatly developed, that of the Consolidated Gas Company of New York being probably the most complete example. This school is devoted to the fitting branch of the organization, and occupies the entire floor of one of the shop buildings. By the New York method, applicants for employment as helpers are first "sized up," and, if satisfactory, sent to a district shop to work for several weeks in order that the superintendent may better judge their characteristics. While in the shop they are put at all kinds of work, and also sent out as helpers. If these young men have sufficient intelligence, and show aptitude for the work, they are eligible for the first or elementary course in the school, their names being placed at the bottom of the list of those waiting to go to school.

The system of instruction is graduated from elementary work to the more complicated. An instructor, with numerous expert assistants, handles from 30 to 50 pupils daily, keeping a record of their progress and reporting each day to the main office, from where information concerning their own men is sent to the different shops. In every study the students actually perform the mechanical work called for. There are two sessions, morning and afternoon, taking up different subjects, the classes made up of those whose turn it is to attend.

When a new man first goes to the school he is taught indexing, attends the school until he attains proficiency in this branch and receives the O, K. of the instructor. The instructor will not pass a man in any subject unless he is competent to perform the work, and before being finally passed and given a second O. K. in a later visit to the school, he must correctly answer 10 written questions pertaining to the subject he is being taught. As soon as a shop is notified that a man has received an O. K. in any class of work he is alloted similar work in the district, but is accompanied by a district foreman, who reports upon his competency under conditions as met with. After he has worked in the district until proficient in the work, and when the men before him have all qualified for a higher grade of work, he is sent to the school to qualify in the higher grade. In this way men having knowledge of the work are always available.

Some of the subjects upon which instructions and demonstrations are given are as follows:

Locks and Unlocks.	Stove Measurements.
Complaints.	Stove Sets.
Indexing.	Meter Measurements.
Burners.	Meter Sets.
High Bills.	Stove Repairing.
Leaks.	Industrial Appliances.

Actual work tickets are used in dealing with these subjects, and the men are taught to write brief and intelligent reports, and are tested for their sense of smell, a defect in this being sufficient to bar a man.

The expense of the school is large, as employees are paid full wages, together with traveling expenses to and from school, but the results in efficiency and loyalty have more than justified the outlay.

Fig. 1 is a general view of the school, showing the instructors' desks, and the tables used by the men in writing examinations, making out reports, etc.

Fig. 1.

The Fitters' School of the Peoples Gas Light and Coke Company of Chicago, occupies a building devoted entirely to this work. In this building are reproduced all classes of complaint causes; here are all styles of ranges and water heaters for connecting and adjustment; lamps of all kinds for hanging and maintenance; automatic water heaters, hotel and restaurant appliances, meters of all sizes, etc.

When a man makes application for a position as fitter, if his general appearance is favorable, he is first sent to the school, and given some mechanical work to do. He may be given a water heater or a range to connect, and setting the meter; or one appliance to connect and several to adjust, and some difficult jobs for which it is necessary to cut pipe. He is also given tests to determine his ability in reading and writing and his knowledge of simple mathematical problems. The primary object is to determine his mechanical ability and his general characteristics.

If the man applies as a fitter's helper, he is given the same series

of questions to answer, and tasks of a simple nature are performed by him, the idea being to determine his willingness to work as well as his mechanical dexterity. These and all other men who attend the school have their sense of smell tested, since a developed sense of smell is necessary for a man handling gas.

By means of these examinations many undesirable are prevented from obtaining positions and later causing trouble which would result in their discharge. Not only is the company thus protected, but the customer is protected, and incidentally the workman himself.

In the instruction, an effort is made to prepare the men for the seasonable work of the company.

In the early spring, all the fitters and helpers are instructed on appliance installing; for some it is a review, while for some others it may be new ground, The men actually connect up appliances, run the fuel line and set meters, making out the necessary tickets. They are drilled on rules, and given instruction regarding their conduct on a customer's premises.

In the early fall, similar classes are conducted in lamp work, and later in complaint work. All men, whether fitters or street men, who may act as complaint men, are drilled at the school. By means of trapped services and risers, leaks, poor supply, binding meters, etc., they are instructed and reviewed in this particular branch.

At other times classes in stove adjusting are conducted, helpers are trained for fitters, and fitters are reviewed in their weak points.

Fig. 2 is the report card sent on every man who attends the school, the information of value to the division superintendent sizing up his men.

FITTERS' SCHOOL NAME _____ DATE _____

SHOP _____ OCCUPATION _____ RATE _____

COURSE IN _____ EXAMINATION FOR _____

AMBITIOUS _____ BRIGHT _____ NEAT _____ SENSE OF SMELL _____

	Time on Work	Mech. Ability	Char. of Work	Rules	Tickets
Elementary					
Lamp Maintenance					
Indexing					
Measurements					
Meter Maintenance					
Appliance Connecting					
Appliance Adjusting No. 1					
Appliance Adjusting No. 2					
Lamp Installing					
Complaints					
Complaints (No Gas)					

Remarks _____

Fig. 2.

Fig. 3 is the identification ticket used when sending a man to the school.

FITTER'S SCHOOL, S E Cor 24th Place and Butler St

Applicant _____

Address _____

Now employed as _____ Wages _____

Authorized to take Examination for _____

Authorized to take Course in _____

Instructed to Report _____

_____

_____

The Peoples Gas Light & Coke Co. _____ Supt

Chicago _____ _____

Form No 7" 3M 4-13

Fig. 3.

Another phase of the adaptability of the school is in the testing of all men who are to be raised in rate or in position. These tests are along prescribed lines, and no matter how much the man knows beyond the requirements of the grade to which he aspires, he is required to be familiar with all up to that grade. If a man fails to qualify or is weak in some particular line, a report is sent to the shop; and if the ideas of the shop and of the school do not agree, the matter is discussed between the superintendents of the division and of the school.

Many conditions of service are faithfully reproduced at the school, and whenever a new cause of complaint is found on the division, attention is called to it at the school, and if possible the condition is reproduced.

In 3½ years operation, the total attendance was 2,408, 1,288 of these being there for the first time. The men stay at the school for varying lengths of time, depending upon their efficiency when sent, but only one day is spent in the testing of a man. When the examination is that of an outsider applying for a position, the day is on his own time, all of the company's men being carried on the school roll,

The Consolidated Gas, Electric Light and Power Company, of Baltimore, recently established a training school for its distribution men. The school is on the third floor of the main distribution building, with a floor area of about 3,700 square feet. I quote briefly from *The Baltimore Gas and Electric News:*

"At present a course for fitters is in operation intended for all employees engaged in fitting work, regardless of position, department or length of service. Employees are taken from the various departments at sceduled periods, in numbers which do not seriously interfere with the operations of those departments. New men employed are at once enrolled in the school. The period of time covered by the course depends upon the progress made by the individual. A man who does not fulfil the requirements established by the school is not retained in the employ of the company.

"All instruction is during the daytime, the company paying the employee's salary while in the school work. Field work, or work done in actual practice under the direction of a street instructor, is a part of the training. The plan provides for occasional meetings of department heads and foremen, for standardizing the company's policies as applied to fitting work.

"Close study of the company's book of rules is required."

Fig. 4 is a general view of the school of instruction.

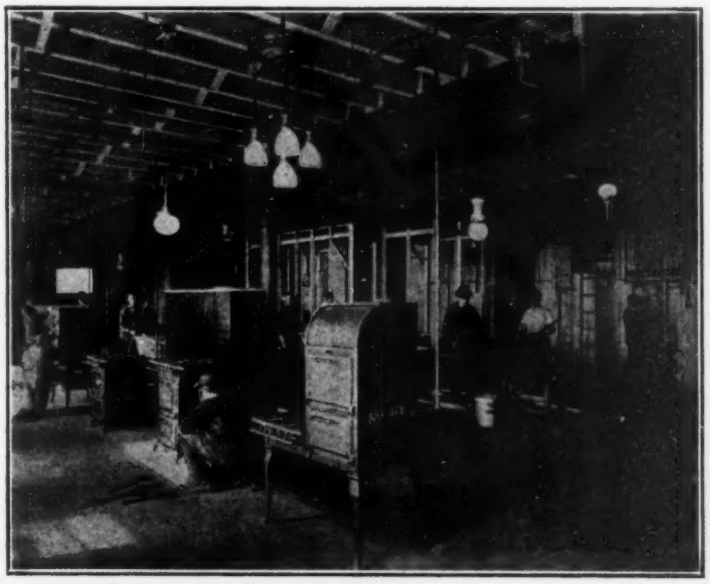


Fig. 4.

Fig. 5 shows one of the models which demonstrate various con-

Fig. 5.

ditions of defective piping. This model is of glass and the arrangement permits of many examples of defective installations, demonstrating in a graphic manner the trouble encountered in actual practice.

Fig. 6 illustrates a lesson in the proper way of installing meters.

Fig. 6.

Fig. 7 is a form which shows the history of the employee since his entrance into the company's employ. It is intended to aid the instructor in keeping in touch with the progress made before and after instruction, and to give the instructor some authority as to the changes made in the standing of the employee.

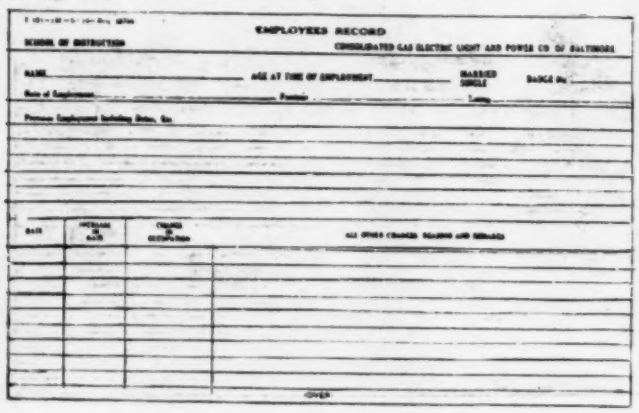

EMPLOYEES RECORD

Fig. 7.

Another point to be considered in any educational scheme is that of a company operating in a number of small towns. Usually the operating force in these towns is limited to two or three men, and the towns are usually considerable distances apart. In such cases the time and expense consumed in travel would be out of proportion to the good accomplished by general meetings. It may be possible, however, to call together the fitters and helpers and other employees of the company in sections composed of towns in reasonably close touch, and to make these meetings partly for social and partly for business purposes. Then the lecture idea offers the best solution to the problem, reinforced by bulletins issued from headquarters calling attention to certain phases of the work.

Comments on Preceeding Headings.—It has been the endeavor to briefly sketch the methods employed in six companies as examples of education. A question may be asked regarding the possible desertion of the men to other organizations, after they have learned the trade at the expense of the company. I do not think there is any more likelihood of this, when the men have been trained by educational work, than where they pick it up by practice. There are no statistics to bear this out, but I know that in Chicago the men do not flock to other organizations after receiving education in the company's school, and I am informed that this is also true of New York.

Naturally men may be discharged or laid off during slack periods and fail to return, or may leave of their own volition to accept better positions, or they might find the work uncongenial. But I believe that the more thoroughly a man is aided in becoming a "gas man" the more apt he is to remain with the company. There seems to be some agency or factor that has produced a general situation typified by the expression "Once a gas man, always a gas man."

This paper has not dealt extensively with the street men as I have no information of the existence of any schools for street men. There is no reason, however, why the street man should not be taught the fundamentals of his work with the same ease as the fitter. This was demonstrated in the Peoples Gas Light & Coke Company of Chicago, when extensive calking with lead wool was first introduced. A course of instruction was established to show the men how to handle the pneumatic hammers, how to caulk joints, etc., and the scheme worked very successfully, *because it was absolutely necessary.* Likewise the same result obtained when the welding of mains was first introduced. The enlargement of the idea to include all of the mechanical work of street operation is but a step, and it would be productive of as great economies as that produced by the school for fitters. I recommend serious consideration of this subject, and would like to see this phase of the teaching of our distribution forces worked out with more detail. Several of tbe companies using the lecture demonstration idea include their street men in the lectures. In Chicago, as has been noted, some of the street men of the better grade are trained in the handling of "no gas" complaints and are as capable in caring for this work as fitters.

Aids in the Creating and Maintaining of Efficiency by Other Than Educational Means.—Undoubtedly the subject of wages is most important in any industrial scheme, and the one over which most of the labor discussions take place. The need for a living wage at the beginning of a man's employment, a wage that will enable him to live decently, is only just and proper; and by providing it, we will lay the foundation of a contented force and a set of men who will stick with us.

Working hours and time off are features which will be largely determined by circumstances and environment. In the Consolidated Gas Company of New York fitting department, mechanical men who have been in the service for 4 years receive a week's vacation at full pay; those in the service for less than 4, but more than 3 years, receive 3 days' vacation with full pay; and it is arranged that one-half of the operating force is given each Saturday afternoon off with full pay during the summer months. In the Rochester Railway and Light Company all legal holidays are given to the distribution employees (except laborers) at full pay, and the foremen are given a week's paid vacation each year, but they are not paid for overtime.

Personally I feel that a 9-hour day is enough for any one to work, save in cases of emergency, and that all foremen, etc., should receive a vacation with pay, since these men are usually on a monthly basis and receive no compensation for overtime.

The Peoples Gas Light and Coke Company, of Chicago, has a complete welfare and pension system, which has gone far in building up of a permanent and loyal organization. A staff of competent physicians is maintained, who examine every applicant for permanent employment, attend injured employees and visit and advise the sick, in consultation with the family physician. Injured men of all classes are paid full time; and wage earners who are ill, full time for 7 days: and half time for a period of 6 months. Salaried employees are paid full time for 6 months, and at the expiration of that period it is discretionary with the officers what shall be done. Death benefits are also paid. If the deceased has been in the service for a year and leaves dependents, a year's salary is given them; if there are no dependents, funeral expenses up to $100 are paid.

In the giving of pensions, requirements are the following: "For each year of service, there shall be made to the employee upon the service annuity roll, an allowance amounting to 2 per cent. of the average monthly pay received by him during the 5 years immediately preceeding retirement." All the costs of these benefits, both wellfare and pension, are borne by the company. In other companies employees have mutual benefit societies, among which are that of the employees of the Consolidated Gas Company of New York and the Rochester Railway and Light Company. Information regarding these systems will be gladly furnished to interested persons.

Much good will result from social organizations among employes since it awakens a spirit of unity and co-operation among the various departments of the company. Such an organization often goes far in removing existing differences between departments, due to a lack of information on the part of those in the different departments. Another potent factor towards co-operation between de-

partments is an employee's magazine. If such a publication is properly managed, it will give the distribution man a clear insight into the workings of the other departments and, in conjunction with social gatherings, is extremely valuable in cementing the organization into a homogenous whole.

I have tried to show the need of educating our men to be of the greatest service to us and to themselves. A treatment of the educational schemes of several companies has been dealt with, and to those who would go this path, the way has been pointed out. That it is impossible to lay down any set of rules must be recognized, since conditions in various communities are so different. The establishment of educational facilities, the providing of a plan to recognize good and faithful service and the elimination of the petty troubles that prevent men from putting their whole being into the work, are strongly urged. We must remember that we are building for the future, and that if we do not do our part in helping our operatives to better themselves, they are not going to help us to properly conduct our business. As one man in the gas industry said: "If I were to give any single statement concerning the improvement of distribution employees, I should say that the practice of the Golden Rule will produce the results." This is strong logic although it may have a Utopian sound; and since the very life of our industry rests upon the service we obtain from our men, it behooves us to provide at least the tools to aid them in properly conducting this work. Dr. Galloway, in his Atlanta paper, says; "If gas companies want their representatives to stand for the big idea of public service, they must instruct their employees so that they may gauge that idea. The company must see to it that the community is not better informed than are its representatives. It is quite possible that a company's advertising may be more conspicuously displayed before the public than before its employees. It is, therefore, also possible that the consumers may read and believe 'the public be pleased' signs of public service corporations, while the employees of the company may remain in ignorance of either the sign or the methods necessary to carry out the policy." This expresses the necessity in a way that makes the company the power to provide its employees with the idea of service, and, therefore, it devolves upon every distribution man to "read, mark, learn and inwardly digest" the expressions of the men quoted in this paper, so that they may realize that the production of this cohesive operating force is worth the time and consideration of the best men in the organization.

HOUSE MAINTENANCE SERVICE.

[From the paper by MR. ARTHUR HEWITT, prepared for N. C. G. A. Convention.]

It is somewhat unfortunate that gas companies should have so long deferred the inclusion in their service of the maintenance of domestic lighting appliances, as it will now be difficult to prevent an impression in the public mind that they are forced to undertake this service because of the keenness of electric competition. Nevertheless gas companies that still neglect this matter can hardly expect to retain the business of residential lighting.

For 3 years or more the Consumers' Gas Company, of Toronto, has been operating a house maintenance service, and I have been honored by the Committee on Papers with a request to outline the principal features of the scheme, and to present some of the results that have been realized.

With a view to facilitating discussion I have divided it into four parts:

1. Should house maintenance service be given, and what should be the extent of it?
2. Should the service be given without any direct charge to the consumer?
3. The Toronto Plan.—Is it effective, or can a better one be suggested?
4. Is it not a fact that the expenditure in maintenance of a sum equal to, say 2 cents per 1,000 feet of gas sold, is of greater and more real value to a consumer than a reduction of even 5 cents in the price of gas?

Item No. I.—I think it will be admitted that the average consumer cannot himself keep his incandescent gas burners in good condition and adjustment, and that he would not do so even if he could—he would not consent to be bothered. Therefore, if the burner is to remain in service someone must keep it in proper working condition, or out it goes, to be replaced by electric light. On the other hand, the excellence of gas lighting with burners properly maintained will impress the consumer and reduce the chance of change to electricity.

As to the extent of the service, I am convinced that in the final analysis gas companies will provide maintenance, either free or otherwise, for all gas consuming appliances, and the more extensively this class of service is undertaken *before the price of gas drops any lower*, the better it will be for gas companies. The fact is, there would not be the same demand for lower prices for gas if the service rendered by gas companies to their consumers were sufficient for the customers' needs. In bygone days the first and all-important consideration was the shareholders. In these days the way to benefit the shareholders is thought to be by satisfying the customers.

Item No. 2.—From our experience, free maintenance is far more popular than any service charged for directly. Before the house maintenance system was started we tried it on a small scale, and proved that free maintenance would be a benefit to consumer and company.

Item No. 3.—The Toronto Plan.—The house maintenance men do this;

1. Attend to complaints in reference to lighting fixtures.
2. Canvass from door to door for permission to clean and regulate lighting burners, clean glassware, etc., and to sell, at the regular retail prices, mantles and miscellaneous goods required. (Burners are sometimes placed on trial to induce the people to use incandescent burners.)
3. Repair leaking fixtures, burners, by-passes, etc.—reporting to office any cases requiring the service of fitters.
4. Install miscellaneous fixture or fitting orders given at salesroom, such as brackets, pendants, burners, glassware, etc. This provides a prompt delivery service on rush orders direct from salesroom.
5. Fill orders for mantles. glassware, burners, etc., and attend, regulate and clean lights and glassware.

804C Bks-6-14.

HOUSE MAINTENANCE SERVICE

COMMERCIAL DEPARTMENT

The Consumers' Gas Company of Toronto

Address ____ Date Received ____ 191

Name ____ District ____

Quantity	No.	Supplies		Amount
Lamps Cleaned	Time	Date Completed 191	Workman	OK Inspector

Form No. 1.

Form No. 1 is the regular House Maintenance Order written in duplicate by clerks when orders are received over the counter or by telephone. These orders are sent to the House Maintenance Department through the regular hourly messenger service. The original is issued to the man working in the district, and the duplicate kept on a file, and checked the next time the man reports, to assure that the order has received prompt attention. The clerks receiving messages are required only to note the address, name and date; the rest of the order is filled in by the man who completes the order.

Form No. 2 is the House Maintenance *Charge Order*. This is filled in by the workman in duplicate, and signed by the consumer

(*Continued on page 42.*)

THE AMERICAN GAS LIGHT JOURNAL

Entered at the Post Office, New York City, as Second-Class Matter.

Published weekly at 42 Pine Street, New York City.

Telephone Call, John, 2996. Cable, Am-Gas.

E. P. CALLENDER, President.
A. M. CALLENDER, Vice-President and Treasurer.
CHARLES H. WADELTON, Secretary and Manager.

SANFORD K. CAMPBELL, Editor.

NEW YORK, MONDAY, JANUARY 18, 1915.

Your Representative.

The article taken from the paper by Mr. Reinicker draws needed attention to the fact that the fitters, who spend nearly all of their working hours in the homes of your consumers, are the men who represent or misrepresent you to the public. You have always been anxious to know that a fitter is honest, so that there would be no danger of his carrying anything away from the houses in which he works; and it is just as important to give some thought to what he leaves there in the way of permanent installation and as impressions of the company's policies. Our experience is that fitters do a lot more talking than they should, but educating them in ideas of service may make their loquacity of at least some value.

Theorists Fail.

President Alexander C. Humphreys of Stevens Institute of Technology, in an address at Brown University, said that the tendency of the Interstate Commerce Commission and of State Public Utilities Commissions is toward extending their powers from regulation to general control of business enterprises. While Federal and State Commissions have instituted some needed reforms, they have done much that has been injurious to the industrial and commercial life of the nation. The railroads have of late years been so hampered and hindered by the Interstate Commerce Commission and those using the commission as a tool, that the railroad situation to-day is causing deep concern to railroad officials and bankers.

"I am of the opinion that the great majority of those who conduct our public service corporations are more ready honestly to cooperate for real progress and efficiency than are the representatives of the people—the politicians, the amatuer reformers, the professional reformers and the know-it-all cranks.

"One of the most noticable defects in the operation of commission control, State and Federal, is the inability of the Commissioners to master the technicalities involved in the grave and complex questions which, lawfully or unlawfully, are found in their hands for settlement. Questions of engineering and industrial management are involved in the great majority of these questions, while the personnel of the boards is made up generally of lawyers and theoretical economists conspicuously deficient in practical experience."

New York Section, I. E. S.

The New York Section, Illuminating Enginering Society, held its regular monthly meeting at the Engineering Societies Building, 29 West 39th Street, on Thursday, Jan. 14, preceded by an informal dinner at Keen's Chop House, and was attended by a large gathering of members and friends.

Chairman Norman Macbeth presided. The subject of the evening was "Photography by Artificial Light." The first paper, presented by Mr. M. Luckiesh, of the National Lamp works, Cleveland, O., was on "The Application of the New High-Efficiency Tungsten Lamp to Photography." Mr. Luckiesh abstracted his paper and prefaced that with a few remarks on the research and experimental work done in connection with producing light sources and color media for compensating for color differences. The subject was well presented, and like all others from this author, was interesting and proved him an authority on the subject. He gave the results of a genenal study of the photographic value of the radiations from the new gas-filled Tugsten lamps, and showed by curves a comparison of the new lamps with the mercury-vapor lamp and the older type of Tungsten lamps. The effect of voltage on actinicity was also shown graphically. The development of the use of blue glass screens for reducing glare from the lamps when used in portrait photography was described; the fundamental principles of the lighting of studios were dwelt upon; and the application of the Tungsten lamp to various branches of photography were briefly noticed. Data on present practice in moving picture production studios were described and several slides of portraits taken with these lights were shown on the screen.

Mr. R. F. Pierce, of the Welsbach Company, Gloucester, N. J., spoke on Gas Lamps for Photography. The principles involved being the same technically, he confined himself to practical applications. He described a portable rack equipped with 27 single unit gas lamps of approximately 90 candle power each, using a 1 per cent. ceria mantle, and showed by curves its relative value in comparison with other light sources, and the applications of the system.

Mr. J. E. Williamson, of the Submarine Film Company, spoke briefly on Submarine Photography. A number of lantern slides were shown illustrating diagramatically the construction of the outfit used for marine photography, the marine lamp using a Cooper-Hewitt unit, and several photographs of submarine life taken with the apparatus.

Mr. J. B. Taylor, of the General Electric Company, Schenectady, N. Y., spoke on Color Photography by artificial light, with special reference to the high efficiency nitrogen filled lamps.

Mr. M. B. Buckman, of the Cooper-Hewitt Company, Hoboken, N. J., described the Cooper-Hewitt Sky-Light Outfit for Photography. This equipment consists of eight mercury tubes placed parallel to each other in a frame, alternate tubes having a red light transformer to compensate for some of the excess violet and blue-green rays, while the other tubes are set in white reflecting troughs.

Three systems of artificial lighting were exhibited: The Photolite, by The General Electric Company; The Gas Light, by Welsbach Company; The Cooper-Hewitt Sky-Light Outfit, by Cooper-Hewitt Electric Company; and a professional operator took photographs of a model under the three systems of lighting. Samples of the work done were passed around for inspection.

A large delegation from the Metropolitan section of the Professional Photographers Association attended the meeting. and the hall was filled to its full seating capacity.

The Engineering Foundation.

The Engineering Foundation, inaugurated by the United Engineering Society, is the name given to a fund to be "devoted to the advancement of the engineering arts and sciences in all their branches, to the greatest good of the engineering profession and to the benefit of mankind."

The administration of the fund will be entrusted to the Engineering Foundation Board, composed of 11 members, elected by the Trustees of the United Engineering Society, 9 taken from the American Society of Civil Engineers, the American Society of Mechanical Engineers, the American Institute of Mining Engineers, and the American Institute of Electrical Engineers, and 2 chosen at large.

The initial gift for the Engineering Foundation is from a noted engineer whose name will be announcee at the inauguration ceremonies, Wednesday, January 27, in the Auditorium of the Engineer-

ing Societies Building, 29 West 39th Street, New York city. The speakers at this meeting will be:

Mr. Gano Dunn, President of the United Engineering Society; Past-President of the American Institute of Electrical Engineers.

Dr. Henry S. Pritchett, President of the Foundation for the Advancement of Teaching.

Dr. Robert W. Hunt, Past-President of the American Institute of Mining Engineers.

Dr. Alexander C. Humphreys, Past-President of the American Society of Mechanical Engineers; President International Gas Congress.

BROOKLYN UNION GAS COMPANY'S DOMESTIC SCIENCE DIVISION.

The Brooklyn Union Gas Company has for several season's conducted very successful Domestic Science Lectures for its consumers, issuing to attendants on the full course Domestic Science Certificates. In connection with the opening of the new home of the Commercial Department at No. 180 Remsen street, in what was the old general offices of the company, a reception will be given on Jan. 22d, for which engraved invitations have been issued bearing the following:

To introduce
Miss Dorothy S Buckley, Ph.B.
Supervisor of its Domestic Science Division,
The Brooklyn Union Gas Company
requests the honor of your presence
on the afternoon of Friday, the twenty-second of January
nineteen hundred and fifteen
from three until half after five o'clock
at a Reception
to be given in the new home of
The Commercial Department
Mr. Thomas Marshall Ambler, Manager
to the
Recipients of Domestic Science Certificates
Music under the direction of Mrs. M. C. Fuller
Mrs. Maude Campbell Fuller, Soprano. Mr. Harvey Self, Bass.
Mr. George Stehl, Violinist.
Mr. Harold Vincent Milligan, Accompanist.
Admission by card only at 180 Remsen Street

[OFFICIAL NOTICES.]

Wisconsin Gas Association.

OFFICE OF THE SECRETARY-TREASURER,
MILWAUKEE, WIS., Jan. 5, 1915.

The Fourteenth Annual Convention of the Wisconsin Gas Association will be held at the Hotel Pfister, Milwaukee, January 20th and 21st, 1915. The first day of the Convention will be devoted to matters pertaining to the interests of our Association, the program for the second day to include the presentation and discussion of papers of interest to both gas and electric utilities. The Convention Dinner is scheduled for the evening of the second day in the Fern Room, of the Hotel Pfister, and will be under the joint auspices of the Gas and Electric Associations. Following the established customs of the latter organizations our members are requested to bring their ladies on this occasion. Reservation should be made not later than 4 o'clock in the afternoon, in order to allow of ample preparation. Hotel accommodations can be arranged through the Secretary.

PROGRAM.

Wednesday, January 20th.

Opening of meeting at 10 A.M. by President James H. Walker.
Roll Call.
Reading of the Minutes of previous meeting, if called for.
Report of Executive Committee.
Report of Secretary-Treasurer.
Report of Special Committees.
Address of the President.
Reading of papers and discussion:

"Cost and Price of Gas in a Small City," Mr. Wm. C. Butterworth.
"The Why and How of Semi-Indirect Lighting," Mr. Robert Ffrench Pierce.
"Commercial Aspects of the Application of Demand Principle to Rate for Gas Service," Mr. G. H. Cook.

Election of Officers.
General Business.

Thursday, January 21st—Forenoon.

Reading of papers and discussion:

"Financing of Public Utility Properties," Mr. Andrew Cooke.
"The Continuous Meter Reading and Discount System," Mr. E. J. Maxwell.
"Advertising Influence of Public Service Employees," Mr. R. O. Jasperson.

Thursday, January 21st—Afternoon.

P. H. Korst, President Wisconsin Electrical Association, presiding.

"The Wisconsin Railroad Commission's Method of Rate Making," Mr. E. N. Strait.
"Practical Effect of the Workmen's Compensation Act." Mr. Carl Muskat.
"Increased Taxation in Wisconsin and its Effect on Public Service Companies." Mr. Edwin Gruhl.

The session on Friday will be under the auspices of the Wisconsin Electical Association and are stated in detail in their official program. Respectfully, HENRY HARMAN, Secretary-Treasurer.

New Jersey State Gas Association.

OFFICE OF THE SECRETARY,
NEWARK, N. J., January 13, 1915.

The midwinter meeting of the New Jersey State Gas Association will be held at Glassboro, on Tuesday, January 26th, opening at 11 A.M.

The following papers will be read:

"What is Being Done by Manufacturers of Appliances to Encourage the Use of Gas as a Fuel?" Mr. Stanley Grady.
"Is the Sale of Gas-Electric Fixtures by Gas Companies Desirable?" Mr. Robert Ffrench Pierce.

It is expected that the association will join the Philadelphia Gas Meeters at dinner at the Hotel Adelphia at 6:30 P.M.

Yours very truly, O. F. POTTER, Secretary.

New England Association of Gas Engineers.

The Forty-fifth Annual Meeting of the New England Association of Gas Engineers will be held at Young's Hotel, Boston, Thursday and Friday, February 18th and 19th, 1915.

Papers are being prepared as follows:

"New Vertical Settings at Fall River," C. W. Hunter, Boston.
"Concrete Piles for Holder Foundations," F. E. Drake, Lynn.
"Free Maintenance of All Gas Lamps by Gas Companies," J, P. Conroy, New York.
"Industrial Fuel Gas," W. H. Bradley, Springfield.
"B. T. U. Losses on Medium Pressure Lines," W. O. Brewer, Meriden.

Mr. H. N. Tolles, of Chicago, will address the meeting and be at the annual dinner.

Applications for Membership should reach the Secretary by February 17th. N. W. GIFFORD, Secretary.

Pennsylvania Gas Association.

WEST CHESTER, PA., January 9th, 1915.

The Pennsylvania Gas Association, will hold their Annual Meeting in Philadelphia, on April 14th, 15th and 16th. The headquarters will be at the Hotel Adelphia, one of Philadelphia's leading hotels.

A splendid programme has been planned, including excellent papers by well-known men. The entertainment features are in the hands of gentlemen whose reputation has been established for something original and interesting.

It is hoped all members and their friends will be on hand, to make the meeting "Better than ever."

Yours very truly, W. O. LAMSON, JR., Secretary.

(*Continued from page 39.*)

House Maintenance Service.

to have the charge added to gas account. The duplicate is left with the purchaser.

HOUSE MAINTENANCE CHARGE ORDER

ORIGINAL

M to The Consumers' Gas Company

No. 1804

THE FOLLOWING MATERIAL HAS BEEN INSTALLED IN GOOD ORDER.

SHOP ORD. WKT

DIST. | LEDGER | REFERENCE No.

GOODS OUT | LEDGER | JOURNAL | COST

Quantity	No. or Name of Burner	No. or Name of Mantle	No. or Name of Chimney	No. of Shade or Globe	Color of Shade	By Pass	Location	Amount

for which I agree to pay the sum of ..... dollars with my next Gas Bill.

Date ..... 191 Signed .....

Workman ..... Present Address .....

Form No. 2.—(This Blank is in Duplicate—Original and Customer's Copy.)

1. Consumer moving from No. ..... St., previous address.
2. Has gas meter been signed for, and when? .....
3. Is contract in same name as gas account? .....
4. Transfer of meter from Mr. ..... previous tenant.
5. Dwelling or business? ..... Kind? .....
6. If dwelling, what is occupation of consumer? .....
7. Nationality? .....
8. Was security demanded—and what? .....
9. Is meter installed? ..... Size required ..... Lt.
10. Recommend ..... Lt. meter be installed, replacing ..... Lt.
11. Is meter locked? .....
12. What color lock? .....
13. Is service pipe installed? .....
14. Is application and service pipe signed, and when? .....
15. Is service large enough? .....

Remarks .....

SIGD. .....

ORDER WRITTEN O.K. .....

CREDIT O.K. .....

Form No. 3 is the receipt given to customers by the men when goods are paid for on delivery.

Consumers' Gas Company

APPLIANCE BRANCH

12-14 ADELAIDE ST. W. Phone Main 1933

Toronto, ... 191

Sold to .....

Address .....

SOLD BY GOT BY

1 .....

2 .....

3 .....

Form No. 3 (in duplicate).

A "House Maintenance Supply List" is used to issue stock to the men. The men fill in the list of supplies they want, the value of which must correspond with the total value of completed orders from the previous day's work. These sheets are turned in with the orders every morning and the goods are issued to the men, the stockkeeper holding the supply lists as his receipts.

The "House Maintenance Daily Turn-in" is a list of the sales, taken from the orders turned in. This sheet is used for *costing* and distribution of the proper accounts in the Commercial Department Office, and also as a check on the cash turned in to the Head Office.

The "House Maintenance Monthly Report" is made up from the House Maintenance Orders, to keep a separate record of each workman. The daily profit or loss for each man is recorded as well as the number of calls made, the number or lamps cleaned and the cost and amount of sales.

Form No 7 is the "House Maintenance Monthly Summary," a summary of the monthly reports, copies of which are given to the man directly in charge of the house maintenance men and to the commercial superintendent. This form shows the average profit or loss per call for each man and total average profit or loss per call.

COMMERCIAL DEPARTMENT

The Consumers' Gas Company of Toronto

HOUSE MAINTENANCE MONTHLY SUMMARY FOR 191

WORKMAN	Calls	Lamps Cleaned	Cost Time	Cost Material	Sales	Average per Call Profit	Average per Call Loss

Ferm No. 7.

Form No. 8 is a circular that is delivered by the men late in the afternoon at the houses where they intend calling the following day.

Have Your Gas Lights Cleaned FREE

HERE ARE OUR INSPECTORS

INSPECTION STAFF.
RESIDENCE LIGHTING SERVICE

One of them will call on you to-morrow, to clean and regulate your lighting burners, free of charge

We are endeavouring to have one of these men call at every Residence in Toronto at least once in three months to clean all gas lamps and glassware and to regulate all lighting burners. If you require any new mantles or chimneys, they carry them in their grip and will supply them at the regular sale price, and will put them on without any extra charge.

This is not a scheme to sell goods, but simply an effort to be of service to our consumers. We do not wish you to feel under any obligation whatever to purchase supplies from our men.

If you should require any supplies at any time, Phone or send card, and we will have our man call

Rush Messages Received up to Noon will be Attended to the Same Day. Phones Main 1933, 1188.

Form No. 8.

Each man is supplied with a grip containing a stock of miscellaneous goods which are charged to him at the regular retail prices. The method of replenishing this stock is explained in the description of forms. New men are sent out with an experienced man for at least two weeks before being allowed to work alone. The city is divided into districts and each man is allowed one district to work in, and is held responsible for conditions in his territory. Three

inspectors superintend the men, their duty being to see that all work is done properly. These inspectors are supplied with bicycles to enable them to get from one district to another during the day. The better men employed at this work in time prove themselves good enough for regular salesmen, inspectors, etc., and are promoted to such positions. A number of our present sales staff and inspectors have been taken from the house maintenance force.

Owing to the very low electrical rates in Toronto there has been a tendency to switch to electric lighting. This is not because the people consider electric light better than gas light, but because they consider it more convenient. The service given by our house maintenance men has held a great many people from switching from gas to electric lighting; because it has given them the same convenience. To explain this, I might state that in nearly every house lighted by gas, by-passes are used on most of the lights, and house maintenance men call at regular intervals to keep these lights in good condition; making the service just as good as that obtained by pressing an electric button, and giving the people the advantage of the best light. The average person knows that gas lighting is easier on the eyes and better for home lighting, and some people who are not using gas for lighting have no objection to using it, but claim there is more convenience by using electricity. A small proportion object to the heat of the gas burners, but this is not so much referred to as the claim of the greater convenience of electricity.

If a customer telephones during the morning to have a mantle put on, no matter what section of the city it comes from, the order will be attended to that afternoon. This also applies if a customer requires a light to be regulated, glassware cleaned, or new burners put up. If the message is received in the afternoon the order will be completed the following morning. We are sure that we have gained the good will of a great many consumers through the house maintenance service. What appeals most strongly is the fact that the supplies are *installed* at the regular retail price, and that the regulation of the burners, eleaning, etc., is done free.

Taking into consideration the gross cost of the house maintenance for a year, and crediting the amount of sales made by the men, the average cost per call is about 8½ cents. At present we are endeavoring to employ a sufficent number of good men so that each will cover his district once every 3 months, which we believe will greatly reduce the cost of giving the service. The men will be enabled to make more calls and do the work faster and better.

I give below figures taken from our House Maintenance records for the period Aug. 1, 1913 to July 31, 1914. From these you can see that the service is not too expensive to be operated by any large company:

Total Labor Cost for 12 Months	$13,356.80
Total Material Cost for 12 Months	13,250.31
Total Cost	$26,607.11
Less Income from Maintenance Materials	21,778.05
Net Cost	$4,829.06
Total Number of Calls Made Where Maintenance was Effected	56,221
Average Cost per Call	8.57c.
Present Number Men Employed	30
Average Weekly Wage	$10.00
Average Maintenance Call per Day per Man, not including "outs," etc.	7
Number of Burners Maintained Yearly	252,995
Number of Consumers where Maintenance was Effected	About 19,000
Number of Calls per Year for Consumer	3
Number of Mantles used Yearly	42,950

These figures include only the sales made direct by the house maintenance men, as it would be impossible to estimate the amount of indirect sales, but we are positive that if credit was given for other sales made because of the house maintenance service, the cost would be almost entirely wiped out. This does not take into consideration the advertising value of this free work. During the 3 years we have been giving house maintenance service, improvements have been made, until now we have a system approaching the point when it will support itself.

Item No. 4.—A reduction of 5 cents per 1,000 is a great delight to consumers, but is it as much benefit to them as a free maintenance service? To my mind, it certainly is not, nor is it as good for the gas companies. The new business that could be obtained and the present business that could be retained by a 5-cent reduction in the price of gas, would not be nearly so great as the amount of new business to be obtained and present business held by a free maintenance service.

The "Gas World" (London) of June 13, 1914, contains the report of a meeting of the committee of one of the corporation gas works in England, and has the following reference to house maintenance:

"Free Maintenance of Incandescent Burners. In addition to reducing the price of gas, the Manager recommends that the department undertake the maintenance, free of charge for labor, of modern incandescent burners and lamps, and that the following notice be issued to the public:

GAS BURNER MAINTENANCE.

"In consequence of the very extensive adoption of the Incandescent Burner for Lighting Purposes, the Department is prepared to advise and assist Consumers to obtain the BEST RESULTS from this system of Lighting, by undertaking, FREE OF CHARGE, to make periodical inspections of burners by experienced and competent workmen, for the purpose of overhauling same and remedying any slight defects that may arise.

"Burners and Lamps must be of a modern type.

"By this system of Maintenance, Consumers will be able to take full advantage of the CHEAPEST LIGHT KNOWN!

Materials ONLY will be charged for!!"

"The reduction in the price of gas, together with the free maintenance of burners, will cost the department about $13,000.00 per annum.

"The recommendation was adopted."

It is gratifying to me to note the interest which is being shown, not only in the United States but also in England, on the subject of the maintenance of gas appliances in residences. During the past year I have received a great many inquiries for information regarding the results realized from the Toronto plan, and I have no doubt that it will be improved upon by many of the companies who are now interesting themselves in the matter.

Oil Production a Record Breaker.

The phenomenal increases which have characterized the petroleum industry in the United States during the last 8 years were more than maintained in 1914. The quantity of petroleum produced approximated 292,000,000 barrels, according to estimates of the United States Geological Survey. These figures indicate an increase of more than 13 per cent. over 1913, which reached the record breaking total of 248,446.230 barrels. The enormous output in 1914 may be attributed to the remarkable success attending the great increase in field activities stimulated by the high prices in 1913 and in the early part of 1914. The spectacular results of deeper drilling in the Mid-Continent and Gulf regions; the development of a number of prolific pools in Oklahoma, northern Texas, and northwestern Louisiana, in areas little tested at the end of 1913; the successful extension of many proved districts in the Appalachian and Mid-Continent regions; the discovery of new productive fields and the increased development of the old fields in Wyoming; and the large number of gushers completed in California comprise the principal factors contributing to the production in 1914.

The following table gives an estimate of the 1914 production and actual production for 1913, in barrels:

State.	1914.	1913.
California	103,000,000	97,788,525
Oklahoma	98,000,000	63,579,384
Illinois	21,000,000	23,893,899
Texas	20,000,000	15,009,478
Louisiana	15,000,000	12,498,828
West Virginia	11,000,000	11,567,299
Ohio	7,500,000	8,781,468
Pennsylvania	7,000,000	7,963,282
Wyoming	4,600,000	2,406,522
Kansas	2,700,000	2,375,029
Indiana	700,000	956,095
New York	800,000	902,211
Kentucky	500,000	524,568
Colorado	150,000	188,799
Other States	50,000	10,843
	292,000,000	248,446,230

The downward trend of prices in April and succeeding months, due to over production in the Mid-Continent region, supplemented by the decrease in exports following the declaration of war in Europe, resulted in the curtailment of operations, the shutting in of wells wherever practicable, and confined new work for the most part to shallow-sand areas. Toward the end of the year the firmer tendency of the market resulted in a slight increase in field activity.

In Pennsylvania the greatest activity was in the southwestern district, including Allegheny, Beaver, Butler, Washington and Green counties, where the best producers of the year were found and slight extensions of productive areas were made.

In West Virginia interest was about equally divided between the Sardis district, in Harrison county, and the Elk district, in Kanawha county, from which the bulk of the State's production is obtained. Considerable wildcatting in the southwestern part of the State failed to discover a new pool.

In southeastern Ohio activity was most apparent in Hocking, Perry and Fairfield counties, where comparatively regular sands, together with extensions of the Union Furnace, Gore, and Logan fields, furnished an incentive to drilling operations.

In Kentucky the bulk of the production came from the deep-sand fields of Wayne, Morgan and Wolfe counties, Wayne county showing the greatest activity. In Allen county territory was added to the Scottsville pool, and in Ohio county promising completions in advance of the Hartford pool indicated an extension of producing limits.

In northwestern Ohio and eastern Indiana drilling was confined to proved areas which were not notably extended. The net yield of the area showed a decline from 1913. In Indiana the greatest activity was in the Shelburne pool, Sullivan county, a shallow-sand field, which proved the mainstay of the State's production. Later in the year the pool was fairly well defined by dry holes, and the output declined.

Aside from the developed fields in Illinois, interest was attracted to McDougal County, in the western part of the State, where a shallow-sand pool of small dimensions was opened April 30, near the village of Plymouth, and to Lawrence County, in the southeastern part of the State, where the bringing in of a gusher on April 6, in Dennison Township, resulted in the development of a pool not yet fully defined.

Oklahoma furnished the most spectacular as well as the most demoralizing feature of the year. At Cushing the development of the deeper-lying prolific Bartlesville sand and the rapid extension of productive limits, particularly to the northeast, increased the daily output of the field from 23,000 barrels in January to more than 225,000 barrels in December. In Carter County, the development of the Healdton pool, though overshadowed by Cushing, was sensational. Early in January the estimated daily production from seven wells was considerably less than 1,000 barrels, but late in December the production of the field, with many wells shut in, was more than 35,000 barrels a day. Note must also be made of the extensive areas proved during the year in Okmulgee and Muskogee counties; the discovery of oil in the Loco gas field, Stevens county; the promising development near Lawton in Comanche County.

Considerable activity was manifest in all the oil-yielding areas of Kansas, which resulted in a net increase in the State's production, as well as in an extension of many of the shallow-sand pools.

Aside from the substantial southward extensions of productive limits in the Caddo field, Louisiana, and the enlargement of the DeSoto field, a new oil field, as yet undefined, resulted from wildcat drilling in the eastern part of Red River Parish, and rounded out the year with a dozen producing wells. In Sabine Parish efforts were made to develop an oil pool in the Pelican district.

Wildcat activity characterized the Panhandle region of Texas. A shallow sand extension of the Electra pool attracted considerable attention. Developments in the Moran gas field, Shackelford County, indicated the presence of oil in an area as yet undefined. At the end of the year the Burkburnett pool showed the greatest activity, and interest was at low ebb in the Petrolia and Iowa Park areas. Experiments at Burkburnett early in the year demonstrated that the shooting of shallow wells in the Panhandle region was a material aid to production.

In coastal Texas and Louisiana active wildcatting failed to discover any new oil fields, although enormous gas flows were encountered in Zapata County near the Mexico boundary and in San Patricio County, both in Texas. In the developed fields interest was divided between Sour Lake, Tex., and Edgerly, La., which vied with each other in furnishing gushers of unusual size from deep-lying sands. Deeper drilling at Humble, Markham, Vinton and Batson resulted in temporary halts in the declining production of the older fields.

Production in Wyoming was materially increased during the year by improvements in refining facilities at Casper and Cowley, which resulted in marked activity in the Salt Creek and Byron fields. Revived activity was apparent in the old Greybull-Basin fields, in Bighorn County, where a number of excellent wells made a considerable increase in production. Chief interest was, however, centered in the new field at Grass Creek, in the southwestern part of the Bighorn Basin, where the first well was brought in early in June. By the middle of December 18 wells had been completed, all of which showed oil, although in 6 the quantity was scarcely sufficient to warrant a commercial rating. A few miles northwest of Grass Creek 2 wells have proved the presence of enormous quantities of gas along the crest of an eroded anticline in Buffalo Basin, though no oil has been found. In the Shoshone Reservation, Fremont County, 6 wells drilled during the first half of the year yielded an estimated production of 200 barrels of fuel oil a day and opened a new field about 2 miles northeast of Lander. In other fields of the State developments were without notable interest.

Although wildcating was active in Colorado, no new fields were discovered and the State's production continued to be derived from the declining Florence, Boulder and Rangely fields, though there was a flurry of excitement at DeBeque early in the year.

During 1914, as in the previous year, the development in California centered in the Sunset-Midway region, where a number of large flowing wells were completed in the Buena Vista Hills and Maricopa Flat areas. The most spectular of the wells was that of the Lakeview No. 2 Oil Company in Maricopa Flat, which ran wild from May 10 to October 25, the estimated daily flow reaching as much as 50,000 barrels. In the north end of the Midway field relatively shallow wells penetrated unusually thick oil sands and this section was closely drilled. In the southern fields the drilling of deep wells continued in the Coyote Hill, south of Los Angeles, and a number of flowing wells were completed. The Shell Company, which entered California late in 1913, completed a tank farm in the North Midway field and commenced work on a pipe line between Coalinga and San Francisco Bay. In the latter part of the year operations were greatly curtailed, owing to the lack of a market resulting from the European war, and at the close of the year only one or two companies were continuing new work.

In Washington experimental drilling was continued at a number of points in the Queniult Reservation and in the Olympic region, without encouraging results. Tests in Oregon, New Mexico, North Dakota, Missouri, Michigan, Arkansas, Mississippi, Alabama, Maryland and New Jersey likewise failed to justify the hopes of the drilling companies.

Direct Advertising.

Some of the most interesting discussions at the Minneapolis Convention were in the advertising sessions, and one of the important ones was on the value of *direct* advertising.

Indirect advertising is of great value, but it needs to be backed up by direct advertising to reap its full share of results.

To meet this need the "Gas Equipment of the Home" booklet was prepared by a special committee of the N. C. G. A. Never before has a complete reference work of this kind been available, which will put into the hands of the architect, the building contractor and the house owner, such accurate information covering the many uses of gas in the home. Over 50,000 copies of this work have been distributed so far, and its value is shown by testimonials received:

A Prominent Architect Wrote.—"It is most handsomely presented and I believe will be an extremely useful edition to an architect's house."

From the Advertising Manager of the Bell Telephone Company.—"Probably you have already received so many compliments on the excellence of this publication that you are quite surfeited with them. Let me add my own word of praise however. It seems to me to be by far the most attractive and forcible presentation of a merchandising proposition that I have seen for many a day."

From the President of a Large Electric Company.—"I wish to congratulate you upon the very attractive and interesting manner in which this pamphlet is gotten up."

From the Advertising Manager of the Curtis Publishing Company.—"This is the most interesting piece of public utility advertising I have ever seen. It is splendidly edited and printed, and the gas industry should be congratulated."

What a New-Building Salesman of a Gas Company Said.—"I have delivered into the hands of the architects about thirty of these booklets so far, all with their names printed on the cover. It has always been most difficult for me to secure interviews with archi-

tects, but with this book presented, I did not fail in any instance to get an interesting interview. The book appealed to every architect that I saw as being instructive to them and extremely useful. It made me acquainted with the architects, and there is no reason in the world why I cannot go back to them from time to time, for they now know that I have an interesting proposition to present to them."

No one company could prepare such a book at anything near the price at which the N. C. G. A. is able to sell them, and the two sizes available cover the needs of large and small propositions. We take it for granted that every gas manager in the country has seen this booklet, but that some, perhaps, have not yet realized the value it has for them.

Wholesale Water Heating.

These illustrations are from photographs of two rows of new

houses in Philadelphia, only parts of the operations that have been equipped with Electric-Weld Automatic Water Heaters. The cargo sales of this appliance in Philadelphia and other cities for houses built to sell at $3,900 to $6,000 show that it meets the demand for modern equipment in medium priced dwellings.

One gas company that is pushing the water heater says in its printed matter:

"Our experience in developing and perfecting economical Hot Water Service has developed facts worthy of your consideration. Self-contained gas water heaters undoubtedly promote efficiency. Automatic service is essential when your domestic comfort is considered. Hot water, where and when you want it, without excessive cost of installation or operation, is obtainable by using an Electric-Weld Automatic Storage Water Heating System.

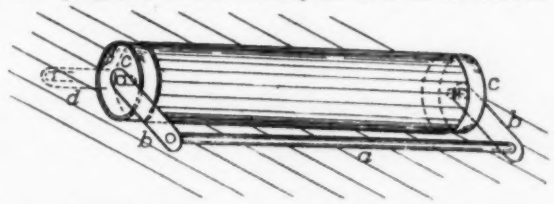
"The system of hot water heating illustrated and described herein represents the ripest development in the science of domestic economy, combining the ideas that are absolutely necessary if economical results are to be obtained."

The Electric-Weld Automatic Storage System is guaranteed absolutely both as to construction and efficiency, leaving to the user the decision as to efficiency. The manufacturers guarantee absolute satisfaction in service.

New Methods and Appliances.

A Safety Roller.—In moving machinery fastened to skids workmen are required to step between and over the rollers and often get their feet caught, because the ends of the rollers project. The need of exercising special care when standing near or in front of a moving roller as recognized by workmen, but a foot is often pinned down with painful and sometimes serious results.

A simple means for preventing workmen having their feet caught by a roller is shown in the accompanying drawing. A guard rail, *a*, made of $\frac{5}{8}$-inch stock, is fastened to arms, *b*, of steel 1/16-inch thick and about 6 inches long. In the upper end of the arms are short $\frac{5}{8}$-inch plugs, *c*, that fit loosely in holes in the roller.



When a workman's shoe comes in contact with the guard it is a warning for him to step aside. In placing an ordinary roller under the front of a skid it is necessary to hold the roller up against the ends with the foot, so that the skids will climb the roller. If the foot is not removed as soon as the roller moves, there is danger of being caught, which is entirely avoided by holding the foot against the guard rail. If it is desired to move the roller in the opposite direction, the rail can be taken off and placed on the other side of the roller, as shown at, *d*, by springing out one of the arms far enough to release the plug.

Weathering of Coal.—The results of investigations of the weathering of the coal bed at the Experimental Mine of the Bureau of Mines, near Bruceton, Pennsylvania, are detailed in Technical Paper 35. The data obtained show the extent of alteration by weathering in the Pitsburgh coal bed in this mine, and will serve for estimates of the alteration of the same bed in other mines. The results demonstrate that indications of weathering such as yellowish coatings of iron hydrate or a dull appearance of the surfaces, do not always signify a material change in the chemical compositions or heating value of the coal. The chemical analysis show that changes in composition have occurred in the coal for a distance of about 50 feet from the outcrop. Several points of similarity are evident between the weathered coal and the Cretaceous coals and lignites. On the other hand, certain dissimilar properties made it doubtful whether a true metamorphosis or reversion of bituminous coal to the lignitic type could ever take place through weathering. Tests were made to show the relative oxygen-consuming power of the coal samples and their power of liberating inflammable gases. As the direct union of freshly broken coal with oxygen lowers the oxygen content of mine air, and as the escape of inflammable gases from broken coal increases the danger of explosions, it is of interest to determine to what extent, if any, this behavior of coal is affected by proximity to the outcrop and consequent weathering. Samples from different points in the mine were put in 5-gallon glass bottles, the coal crushed to pass a $\frac{1}{2}$-inch screen: 20 pounds were placed in each bottle as quickly as possible after the coal had been broken down, and the bottle was sealed before it left the mine. By admitting air to the bottles in measured quantities daily and drawing off the air and gases, the progress of oxidation of the coal and of the liberation of inflammable gas was followed.

New Flashlight Powder.—Flashlight powders for photographic use are generally made of magnesium, combined with a substance rich in oxygen, such as potassium chlorate, but the drawback of such powders is that they make considerable smoke or fumes. Efforts to find a photographic powder that gives but little smoke have proved successful, and the new "Excelsior" compound uses magnesium and oxygen-bearing substances coming from the rare earth. Lanthanum peroxide was chosen with substances added to it analogous to those used in Welsbach mantles. These make a powder giving an excellent flash and only one-tenth the quantity of smoke and this smoke immediately dissipates.

Daylight-Saving Movement at Chicago.—The Chicago Association of Commerce has instituted a campaign for using Eastern time in an effort to start their business day an hour earlier, thus adding an hour of daylight at the close of the working period and reducing the use of artificial illumination.

Items of Interest
FROM VARIOUS LOCALITIES.

IN accordance with his campaign promise, Mayor-Elect Harold E. Sweet, of Attleboro, Mass., resigned as a director of the First National Bank of Attleboro and as a director of the Attleboro Gas Light Company. Mayor Sweet said he considered his resignations advisable so that he could devote more time to city affairs.

DIRECTORS of the Chattanoogo (Tenn.) Gas Company are preparing a new rate schedule calculated to promote the use of gas for manufacturing purposes and make a market for the large supply of gas that will be available when the Chattanooga Gas and Coal Products Company's plant is completed. Manager S. E. DeFreese is quoted as saying the line from the new plant to the city will be laid with welded joints throughout; and will skirt Chattanooga's manufacturing district, placing the gas supply in easy access to those wanting to use gas and discontinue the use of coal, coke and oil, particularly coal, which is to-day recognized as resulting in a great waste of energy, and also creating a nuisance. "We are sure our campaign for the use of a cleaner fuel will be welcomed by manufacturers and the general public. It is distressing to see beautiful homes and public buildings defaced with the lamp black from coal smoke and it will be our aim to change these conditions through the co-operation and support of the Chattanooga public."

THIS clipping from a New England paper indicates that the electric interests are starting a campaign for domestic cooking. "The newer types of electric ranges for the home are vastly superior to those brought out a few years ago. To-day it is quite possible to do all the family cooking on an electric range at a cost which compares very favorably with coal or gas. The meals for four or five persons can be prepared on an electric range at a total monthly cost of $5 for electricity where a heating and cooking rate of 5 cents per kilowatt prevails. But in many places a cheaper rate can be obtained where one intends to do all the cooking by electricity. At a four cent rate the cost would be $4 a month and but $3 a month under a 3-cent rate, which is not at all unusual. Under a 5-cent rate a breakfast for five persons, consisting of oatmeal, dropped eggs on toast, toast and coffee, can be cooked for 3 cents. A dinner consisting of pork chops, fried apples, boiled potatoes, French toast, sauce for toast and coffee costs 6 cents. A supper of scrambled ham and eggs, cranberry sauce, biscuit, tea and cake costs but 5 cents. The newer types of electric range embody many features of the so-called fireless cooker. These features reduce the cost of current about 40 per cent. Ordinary cooking utensils can be used."

MR. CHARLES E. RAMIREZ will have charge of the show rooms of Messrs. Bayley & Sons, manufacturers of "Equalite" lighting fixtures in the Architects' Building, at 101 Park Avenue, New York city. Mr. Ramirez is a newcomer in the lighting field.

THE Fonda (Ia.) Gas Company, which has been supplying consumers on some two miles of main with acetylene gas, has shut down its plant and gone out of business. While it has been thought for sometime by those in position to know, that this move would come, the company has maintained that it expected to remain in business as heretofore permanently.

W. R. AND C. R. DAWSON, who recently purchased the North Augusta (Ga.) water works from the Augusta-Aiken Railway and Electric Corporation, have taken possession of the property and trasferred it to the North Augusta Water and Gas Company, chartered under the laws of South Carolina, with a capital stock of $50,000, and with the following officers: President, James U. Jackson; Vice-President, William R. Dawson; Secretary and Treasurer, Cliford Dawson. A contract has been let to Mr. Paul Bush to enlarge and improve the water works. And, as indicated in the style of the firm, at some future date it is the intention to install a gas plant, but no definite date for that has been set. It is understood, though, that the company will begin right away to gather data on the number of consumers they can count on for support and other details.

MR. A. M. BERG, who has been for a number of years with the New Business Department of the Public Service Gas Company in Jersey City, N. J., is now connected with the George M. Clark Company.

TWO RIVERS, Wis., is again agitating a municipal gas plant and the Council has declared in favor of the project by turning down an application made by Indiana promoters for a franchise. The application; when considered by the Council, met with strong opposition, the Aldermen declaring that the city should establish a municipal plant, and in line with this attitude, the Council will take up the plan.

MR. A. L. THORMAN has resigned as Manager of the Corpus Christi (Tex.) Gas Company, and will leave for San Antonio to engage in the real estate business. Herbert L. St. John, Resident Engineer for the company, will be Manager pro tem.

THE New Haven (Conn.) Gas Light Company has made another distribution of stock to its employees under the profit sharing plan inaugurated in 1906. The total amount of stock distributed for the quarter ending Dec. 31, 1914, is 113 shares, worth $4,350.50. With this distribution there are at present 277 employees holding stock in the company, whose holdings represent 1.699 shares valued at $65,411.50 altogether. 322 employees share in the plan, some of whom have not received sufficient credits on dividends for a transfer of stock.

THE fourteen-year-old suit of the City of St. Louis, Mo., against the National Surety Company on a $200,000 bond made by them for the Kern Incandescent Gas Lighting Company, which contracted in 1900 to light the city, has been settled out of court by payment of $100,000. The Kern Company entered into the contract with the city, but after sixty days the city decided the company was not fitted to keep its contract, and declared the contract invalid and sued the National Surety Company for the amount of the bond.

AT the last meeting of the Wilmington (Del.) Gas Company Study Club in the rooms of the local A. O. U. W. Hall, a literary program was enjoyed by a large number of members. Thomas Newall, street foreman of the company, delivered an adress on "Sewers and Maintenance," and W. P. McCracken spoke on "Public Relations and Complaints."

MR. HOWARD A. HUEY has been appointed Assistant Manager of the Oklahoma Gas and Electric Company, Oklahoma City, Okla.

WAGNER & DUNN, of Detroit, to whom Johnson City, Tenn., recently granted a franchise to install a gas plant and the American Gas Construction Company, of Newton, Ia., have deposited in bank $1,000, to be forfeited in case they fail to build a plant within a stated time. The plant will cost about $100,000 when completed.

WORK of changing over the prepayment meters in Holyoke, Mass., to conform with the 90 cent gas rate is progressing rapidly. About 5,000 meters have been changed so far and the work is being done at the rate of about 500 a day. The 10,000 meters which have to be changed will be finished by the end of the month, the new rate going into effect February 1.

THE consumers of Gas in Saco and Biddeford, Me., received this notice from the York Light and Heat Company:

"Commencing January 1, 1915, the minimum charge for gas will be 25 cents per month. Consumers not using 25 cents worth of gas in any month, will be billed the minimum charge. Consumers using pre-payment meters may deposit the amount of minimum charge in their meters monthly."

MAYOR CURLEY of Boston, Mass., has authorized for experimental purposes the installation on 250 gas lamps of automatic lighting and extinguishing attachments. They will be tried out for three months. If at the end of that time they are satisfactory the city will buy them, and probably contract for many more.

THE report that shop fronts, staircases, gas and electric light fixtures and other things containing copper have been pulled to pieces all over Germany to supply copper for the Krupps is an instance of the toll which war levies. Confidential instructions by the German war office, that have fallen into the hands of the French secret service, are said to indicate German inability to "furnish an inexhaustible supply of ammunition."

THE plant and franchise of the Standard Gas Company of South Jersey at Sea Isle City has been sold at public sale by Melbourne Middleton, of Camden, receiver, to Charles F. Riley, of Philadelphia, for $8,500.

THE Amarillo (Tex.) Gas Company is preparing to move its office to the north half of the First National Bank building on Polk street. The office is being refinished, and as soon as the workmen are through the transfer will be made.

THE office force of the Citizens Gas Light Company, of Quincy, Mass., beat the post office boys in a special at the Wardwell alleys Tuesday evening. The latter have lost two matches but intend to issue another challenge. Joe Reardon was high with 313.

Gas Office.

LaCroix	87	104	94	285
Nichol	101	82	88	271
Ellard	88	78	93	259
Howe	77	90	99	266
Muir	86	80	94	260
	439	434	468	1341

Post Office

Hynes	87	84	87	268
Cain	78	93	65	236
Reardon	105	109	99	313
Mitchell	80	103	66	249
Joyce	83	79	75	237
	433	468	392	1303

"AT the first annual banquet of the Study Club of the Roanoke (Va.) Gas Light Company the men of affairs, who never heard of the club before, left the banquet hall at midnight with new conceptions of what co-operation and loyalty can do to maintaining standards of efficiency. From beginning to end the evening was instructive. Subjects touching every good citizen were discussed by men who knew how to discuss them, and the program of speech-making was so evenly drawn between the serious and frivolous that there was not a man who did not consider he had heard the best in both veins. Mr. W. R. Bradley was a graceful and gracious toastmaster, and his introductions were responded to in the same manner. Manager M. M. Milton was the first speaker, his keynote "efficiency." Mr. Milton discussed briefly the cardinal principles that underlie an embracing efficiency and convinced all listeners that he knows what it takes to make up an efficient and satisfying organization and knows how to secure the ingredients. His talk was warmly applauded."

WHETHER or not Marshfield, Wis., will have a gas plant, is still up for consideration by the city fathers. Various propositions were made during the last 3 months, but nothing definite has been determined. The American Gas Construction Company, Newton, Ia., has offered to build and operate a plant if the city will give them a franchise, or, if preferred, the company will equip such a plant for the city, with 15 miles of gas mains, for $52,000. Citizens feel rather skeptical about giving away a franchise, reasoning that, if men familiar with the earning power of a gas plant are anxious to step in and build a gas plant wholly upon prospective business, why would it not be good policy for the city to own its gas plant?

MR. E. W. HANLEY, President of the Dayton Gas Company, and Chairman of the Ohio Democratic State and County Central Committees, has returned from Battle Creek, Mich., where he has spent some eight weeks in an effort to regain his health and strength, and announces that he will sever his connection with many of the enterprises with which he has been so prominently connected. He will continue as the head of the Dayton Gas Company, and retain his place on the Food Conservancy Committee, the latter a work he has felt a sacred duty. He has disposed of his stock in the Dayton Street Railway and resigned as a Director. Mr. Hanley has also disposed of his interests in the Columbus Natural Gas Company and the Medina Gas Company, resigning as a Director and Secretary-Treasurer of both concerns. He said the doctors at the sanitarium had advised the action he has taken and told him it was essential that he leave off much of his activities.

MR. CHARLES M. KEEBLER, lately of the New Jersey Gas Company, Glassboro, N. J., has been appointed Superintendent of the Havre de Grace Gas Company, succeeding Mr. B. C. Rambo.

THE New Bedford (Mass.) Gas and Edison Light Company announces a reduction from $1 to 90 cents per 1,000 to consumers in Fairhaven.

Utilities Commission News.

ALLOWS HALF.—Permission has been given the North Adams Gas Light Company by the Massachusetts Public Service Commission to issue 2,000 additional shares of capital stock at $150 per share, instead of issuing 4,000 shares as petitioned for by the company. The petition attracted attention on account of the opposition by the city authorities.

The company asked for permission to increase on the ground that a considerable sum had been laid out on improvements to plant and equipment, and in anticipation of further additions. One of the objections urged was the fact that the company would not allow as large dividends on the increased capital stock as on the present amount, and that the people should get cheaper rates upon the showing made by the earnings of the company.

TO ARBITRATE.—Whether there will be any change in gas rates in Galesburg, Ills., following the expiration of the first five years of the Galesburg Railway Light and Power franchise will depend upon the finding of a board of arbitration to which the matter of rates is to be referred. Mr. D. L. Peterson will act as arbiter for the city, the company has been asked to select the second arbiter and these two will name the third member of the board.

WISCONSIN RAILROAD COMMISSION.—The annual report of the Wisconsin Railroad Commission for the year ended June 30, 1914, shows a total of 541 electric, heating, water and gas utilities reported to the Commission, a gain of 120 since 1910. The Commission heard 644 cases, an increase of 171 over the year previous, of which 237 were utility cases. A total of 100 formal decisions on utility cases were issued, and 1,840 complaints were received, an increase of 535 over the previous year.

Authority was granted for the issue of $552,563,414 securities, as follows: Stock, $5,148,214; bonds, $546,047,200; equipment trust certificates, $1,280,000; gold bond certificates, $80,000; notes, $8,000.

The report notes a substantial increase in all utility business. In electric utilities operating revenues increased 11.29 per cent. over a year ago. Gas utilities showed an increase of 5.2 per cent.; heating utilities, 16.61 per cent. New construction during the year showed an increase of 11.75 per cent. for electric utilities and 6.8 per cent. for gas utilities. Water utilities showed a decrease of 26 per cent.

Attention is called to the fact that since 1910 there has been an increase in the ratio of operating expenses to operating revenues for all utilities except electric lighting and gas. In the electric railway business the operating ratio increased from 68.9 per cent. to 72.88 per cent.; heating utilities show an increase from 79.86 to 87.68 per cent.

LIGHTING COMPANY MUST PROTECT ITS SERVICE AGAINST LIGHTNING.—The Supreme Court of Georgia has affirmed a judgment given by the Superior Court holding that where an electric-light company maintains overhead wires to supply light to a residence it must employ such approved apparatus as is reasonably necessary to prevent injury by a thunderstorm.

The action was brought against the company for personal injuries due to a shock received when lightning struck the apparatus used by defendant in conducting the electricity to plaintiff's residence. A demurrer filed by the lighting company complained that no cause of action was set forth in that the petitioner did not allege (a) any breach of duty to petitioner, (b) or that the defendant was not in exercise of all ordinary care and diligence due plaintiff, (c) or any fact showing that the wires were not in a safe condition, (d) or specifically any acts of negligence or definitely how or in what manner the defendant was negligent. Other grounds of demurrer were that it appeared from the allegations of the petition that the injury was a result of an unavoidable accident and that it was the result of a stroke of lightning; that there were no allegations that the injury would have been averted by any kind of installation, ground wires or lightning arresters, and that it was not alleged that the wires running into the plaintiff's residence were not properly insulated, nor was it alleged what it takes to constiture proper installation. The court ruled that a petition in an action against an electric-light company for personal injuries due to a shock received by the plaintiff when lightning struck the apparatus used by defendant in conducting the electricity to plaintiff's residence was not demurrable for failure to state a cause of action.

THE UNITED GAS IMPROVEMENT COMPANY,

PHILADELPHIA.

BUILDERS OF

THE STANDARD DOUBLE SUPERHEATER

LOWE WATER GAS APPARATUS.

ACCURATE MEASUREMENT

OF

AIR AND STEAM SUPPLY

(PATENTED),

AFFORDING { PERFECT CONTROL OF GENERATOR FIRE CONDITIONS.

PRODUCING { UNIFORM RESULTS. HIGHEST EFFICIENCIES.